



**BARBER DWINNELL  
ELECTRIC & MFG. CO.  
KANSAS CITY, MO.**



# ELECTRIC LIGHTING PLANTS

*For Town and Country Residences  
Public Buildings, Business  
Houses, Small Cities*



MANUFACTURED BY

Barber-Dwinnell Electric and  
Manufacturing Co.

306 EAST FIFTEENTH ST.  
KANSAS CITY, MO.





## Perfect Home Lighting

For lighting the home, nothing will do much like good suspension and recessed-lighting fixtures. With electricity there is no candle needed, nor wax. The fixture, painted a bright or any color of your choice, stands and goes where you want it. In combination with electric fixtures, there is nothing like this type. One can speak of beauty of price, because the smallest fixtures are quite sufficient for the main rooms or offices. Long-life lamps, too, are. There is no danger of explosion, nor possible need ever again. Electric light is necessary to health, we well see ourselves.

To all houses are electric lights & fixtures. We consider the first high cost of the equipment, reasonable. You received many more savings than lighting costs, probably and losses. The Barber-Dowdell Lighting System insures you the best lighting at the lowest cost. Our fixtures are simple, their designs being a classic, yet modern. And the satisfactory experience has been received by thousands of persons. It is not without reason that most of every home prefers.

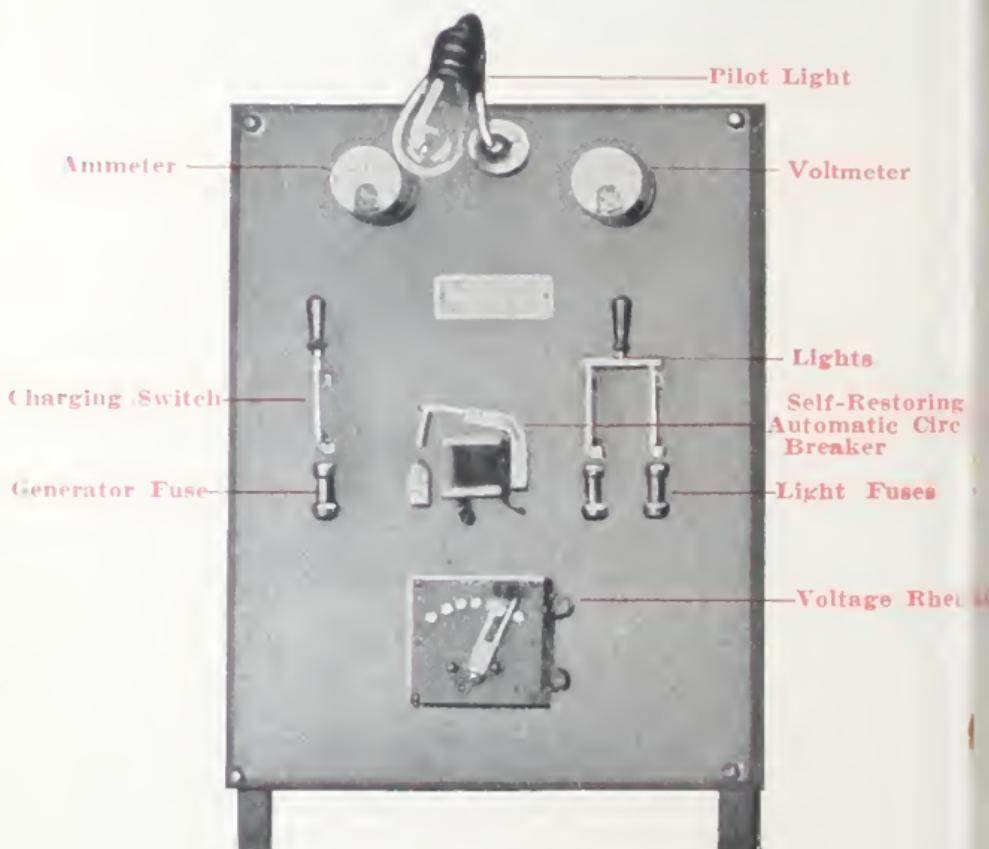
The lighting of the home, plus all manners of incandescent and electric fixtures, always right, easily does more than brighten the apartment room, but it helps to create a comfortable personal atmosphere. The combination of insulation, to which the system has given, is unique. The incandescent lighting system, the electric fixtures, and the suspension units, are made with culture of craftsmanship. In fact, the company of Barber-Dowdell Electric Lighting Systems give you the best. The fixtures, though very sensible, yet are always built permanent.

### Operation.

In purchasing the Barber-Dowdell Lighting System, you receive a full set of fixtures. These are fixtures can make a lighting place easy and give good service as long as there is some electrical power at hand to back them up. It is not a difficult problem, however, to design an outfit that can be had in the hands of a person who has no knowledge of electricity and be operated easily for great satisfaction.

service. Many "Barber-Dwinnell" plants have had no electrician near them since the day they left the factory. They have been unboxed, set into place and operated by the purchasers themselves, following the simple directions we furnish. The switchboard is arranged so that it is impossible to go wrong in any way in handling the various switches. In a number of instances a 12 or 14-year-old boy has full charge of the system. In one case, the entire house was wired by the 16-year-old son, who wrote to us and obtained some pointers about the job, and completed it with the wiring supplies we furnished to him at moderate prices.

The simplicity of our plant, for instance, is shown by the following example. Many lighting plants now



*Switchboard of Type A Plants.*

in use have no means for telling when the batteries are fully charged and when they are run down. A glance at our switchboard voltmeter will tell in an instant in what condition the batteries are; there is no guesswork as to when to run the engine and when to shut it down.

### Storage-Battery Plants Now Practical.

It is only a few years since the isolated storage-battery plant has come into use, and only two or three years since the public in general has lost its skepticism regarding them. When first introduced these small plants were designed with such complicated features as counter e. m. f., cells, relays, etc., and, as everyone knows, a complicated machine is successful only when operated by a specialist. Engineers then began to realize that if such plants were to be a commercial success it was necessary to design them not to perform fancy stunts, but to give light at all times, with practically no supervision. Over the desk

of our chief designer is a motto reading, "Simplicity—Durability." This is his watchword at all times, and it explains why the plants of our manufacture do what they are supposed to do, and keep on doing it year after year, without the necessity of calling in any outside help.

Our plants have all the automatic devices consistent with reliable operation. However, they are not automatic lighting plants. Unfortunately the manufacturers of plants or other devices which will "do fancy tricks" can always find some people to buy them—people who forget to investigate whether they will do good, steady work, **day after day**. We are sometimes asked: "Why don't you put a couple more relays on the switchboard, and have them shut down the engine and close the oilers when the battery is charged?" We could do this, in fact, we could go further and add coils which, when the battery was charged, would operate mechanism for wiping off the engine, putting in a fresh supply of gasoline and causing the switchboard to walk upstairs to inform the owner that everything was now shipshape for the night. Our plants are automatic as far as practical, but further than that they are not, and as we see it now, they never will be.

In other words, in the hands of an expert electrician a so-called automatic lighting system has many attractive features, but for those who are unacquainted with the numerous complicated relays, requiring frequent adjustment to meet varying weather conditions, etc., the simpler systems, such as the Barber-Dwinnell, are much more desirable and dependable.

### Where to Buy a Lighting Plant.

There are some concerns which assemble and sell a few plants a year, but we are the only firm actually manufacturing storage battery plants in this part of the country, and one of the very few in the entire United States who actually make their own batteries. In our last bulletin we stated that we were sending more lighting plants into the Western states than any other firm. We now say, with certainty, that we are now selling more of the isolated storage-battery lighting plants in this part of the country than all other firms combined. We are an established concern of engineers and manufacturers selling electrical machinery of all kinds to the trade in the Western states.

If you should have an accident with your lighting plant, where would you be most likely to get immediate assistance—from a firm which has assembled its batteries from Philadelphia, its circuit-breaker from Cincinnati and other parts from different parts of the country; from a firm with a factory in New York or Buffalo, or from a firm with a factory right here in Kansas City? Obviously, it is to your best interest to deal with the Kansas City firm.

The glimpses of our factory, which we reproduce in the back part of this booklet, will suggest to you the extent to which we are engaged in the manufacture of storage batteries. On our engineering staff are experts who have made a life-long study of the theory and practice of battery building. Our shop is supervised by other men who have spent long years in Eastern battery factories, learning the most successful and up-to-date methods of battery construc-

BARBER-DWINNELL



*Field's Farm, Lee's Summit, Mo.*



## FIELDS' FARM HEREFORDS

R. M. FIELDS & SON



### DOUBLE STANDARD POLLED AND HORNED HEREFORDS

YOUNG STOCK FOR SALE PRINCE 5TH BT2719 (1400) HEAD OF THE HERD VISITORS ALWAYS WELCOME

FIELDS' FARM, LEE'S SUMMIT, MO., 3/31/1914.

Barber-Dwinnell & Co.,

Kansas City, Mo.

Gentlemen:

Your lighting plant which we have been using every night for the past year and a half is still giving excellent service and in fact has always been perfectly satisfactory. As you know, we have a great many guests and we use four or five times as much light as most farm houses but that doesn't seem to make any difference as the plant runs right along anyway even though it is your smaller size. Our guests often remark that our lights are better and brighter than city lights.

Yours truly,

*Mrs Lena Fields*

tion. Every cell is submitted to careful and exhaustive tests before it is permitted to leave the shop. In actual service the "Barber-Dwinnell" batteries are creating a name for themselves, as is amply testified by the letters we have reproduced in this book and many more which reach us daily.

### Features of Our Plants.

**Barber-Dwinnell Lighting Plants** consist of three essential parts, each performing a distinct function, but all carefully adapted to each other and all working together to produce a perfect and dependable light.

The **Generator**, which, driven by your own engine, creates the electricity.

The **Batteries**, which store up this electricity and have it ready for use when you want it.

The **Switchboard**, which controls the plant, regulates the flow of electricity into the batteries, and tells you with its indicators when the batteries are fully charged, and also when they are so nearly discharged that it is time to run the generator for a while. Nothing but the very highest grade material and workmanship enter into the construction of our switchboard, and, barring accidents, it will last a lifetime.

The generator used on each size plant is of a type and capacity best adapted for that particular plant. Every one is a high-grade piece of apparatus, specially designed for this class of work, and will wear for many years, requiring no attention except occasional oiling.

The heart of any isolated lighting system is its storage batteries. Most firms put the batteries out in rubber jars and, while there is less risk in shipping, such batteries have many drawbacks. The best batteries, such as used in large city plants and in some smaller plants, are assembled in glass jars, and it requires only a glance at the batteries to see what condition they are in, and how much of the liquid electrolyte has evaporated. The advantage of the rubber cell battery is that it can be shipped fully assembled, sealed in and fully charged. The glass cells are usually shipped in parts. **Barber-Dwinnell** batteries are a combination of the two types, having the good points of both. They are assembled in glass jars and are shipped fully charged, sealed and ready for service. The only attention they require is the occasional adding of cistern or distilled water, as the electrolyte evaporates below the top of the plates.



Showing One of Our Complete Cells, Just as It Is Shipped.

### Engines for Charging.

Almost every country home, suburban residence, or small town residence, where there is no electric light-



*The Columbian Hotel, Taos, N. Mex., Has a Type A Barber Dwinnell Electric Lighting Plant.*

## *The Columbian Hotel*



*Mrs. R. C. POOLER, Prop.*



*Taos, New Mexico, June 25, 1914.*

Barber-Dwinnell Co.,

Kansas City, Mo.

Dear Sire:

I am sending you a dozen post cards. Half of them show the plant, and the other half show the Hotel in front. I paid the man a dollar a dozen for them.

I see by your letter that you want me to say something in regard to the plant. It will take but a few words to praise it. I am certainly more than pleased with it. It has given me all the satisfaction anyone ought to expect. I feel like I have bought the best thing money can buy. Besides it is a pleasure and an ornament to my Hotel.

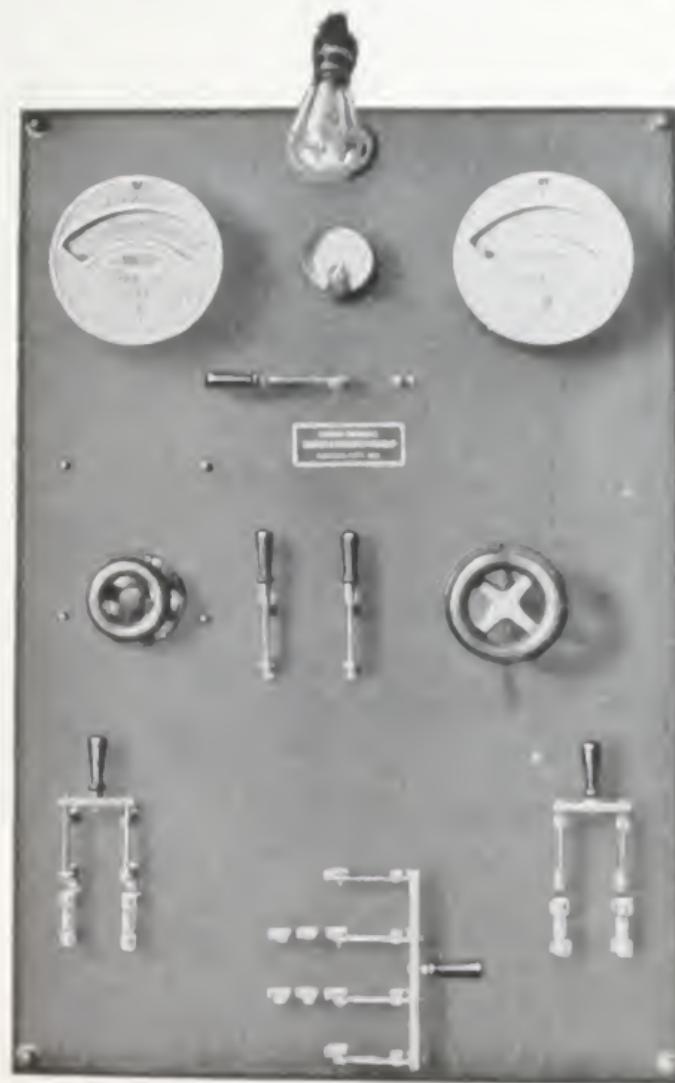
Sincerely yours,

*Mrs. R. C. Pooler.*

## PERFECT HOME LIGHTING

ing plant, has a gasoline engine for pumping water and doing other work; and while this engine is doing the regular work it can be utilized for charging a storage battery for supplying you with several days' electricity for steady, pure, white light, with no trouble except putting the belt on the dynamo when you want to charge. In this way your electric lights are always ready for instant use. There is practically no expense connected with such an electric lighting plant beyond the first installation.

We do not make a practice of selling engines, unless for some reason it is to our customer's interest that we do so. The prices listed on Pages 15-19 do not in-



*Switchboard Used With Our Special 110-Volt Battery Plant.*

clude engines. Any engine coming up to its rated power will handle the lighting plant, and the lights will be always steady, regardless of the engine regulation, as the batteries are always floating on the line, acting as a cushion. Use the right size of whatever engine you prefer or can buy to best advantage, and you can be certain of perfect results.

### Electricity vs. Gas.

In a city like Kansas City most homes are both wired for electricity and piped for gas. The cost of burning the electric lights is much higher than that of burning the gas lights. However, in practically every home the gas is used for **cooking only**, and for



*(See, in a Type A Barker-Dimmele Electric Lighting Plant  
in the Home of John A. Hall, Pleasanton, Kansas.)*



JOHN A. HALL,  
ATTORNEY AT LAW,  
PLEASANTON, KANSAS.

June 10, 1914.

BARKER-DIMMELE CO.,  
100 EAST 15TH ST.,  
TOPEKA, KAN.

Dear Sirs:

The plant which we purchased of you last year has been giving excellent satisfaction. I have quite a large house, having one room, bath and hall. We use the plant for lamp, washing, lights, freezing and such smaller purposes as drying meat, warming cupsakes, etc. We operate the lamp when the engine is running. For lighting and the purposes during the day time I charge the plant about five dollars a week. I have the engine arranged so that the motor will run when water is low. The cooler together with an electric pump will do the cooling together with an electric pump. Also, when the engine stopped so that all I have to do is to start the engine when I want ice cubes in the refregerator and that about is off at once. This lasts for a week without care, the engine is running when the time is over starting the pump when I charge about three dollars a week.

Yours truly,

lighting the more expensive electricity is used. But it is only in places where natural gas is available that it is so cheap, as compared with electric city current. Those who are figuring with manufacturers of gas lighting systems will think over this statement, so where there will be no question as to which system they will put in—and remember, **gas is gas**, and with a proper gas mantle the cheapest natural gas gives as good a light as the most expensive artificial system.

### Electricity vs. Kerosene.

Do you know that a well-trimmed kerosene lamp with a wick one inch wide gives a light of about six candle-power? Electric lights can't compare, don't



*Lighting Plant of John A. Hall, Thorntown, Kansas. The Basement Is an Ideal Place for Installing an Electric Light Plant.*

spark matches don't have smoky chimneys to clean and give a much whiter and stronger light than kerosene.

### Operating Cost.

If the engine used on your light plant is used for nothing else, it will be found that the cost of your lights, including the cost of gasoline and oil, will be from one-tenth of a cent an hour for every sixteen candle-power light used. If the engine is used also for pumping and the batteries charged at the same time, it is fair to figure that either the lights or the water cost you nothing.

### Selecting Size of Plant.

Do not make the usual mistake of selecting your lighting plant size by multiplying the number of lights installed by the number of hours darkness per

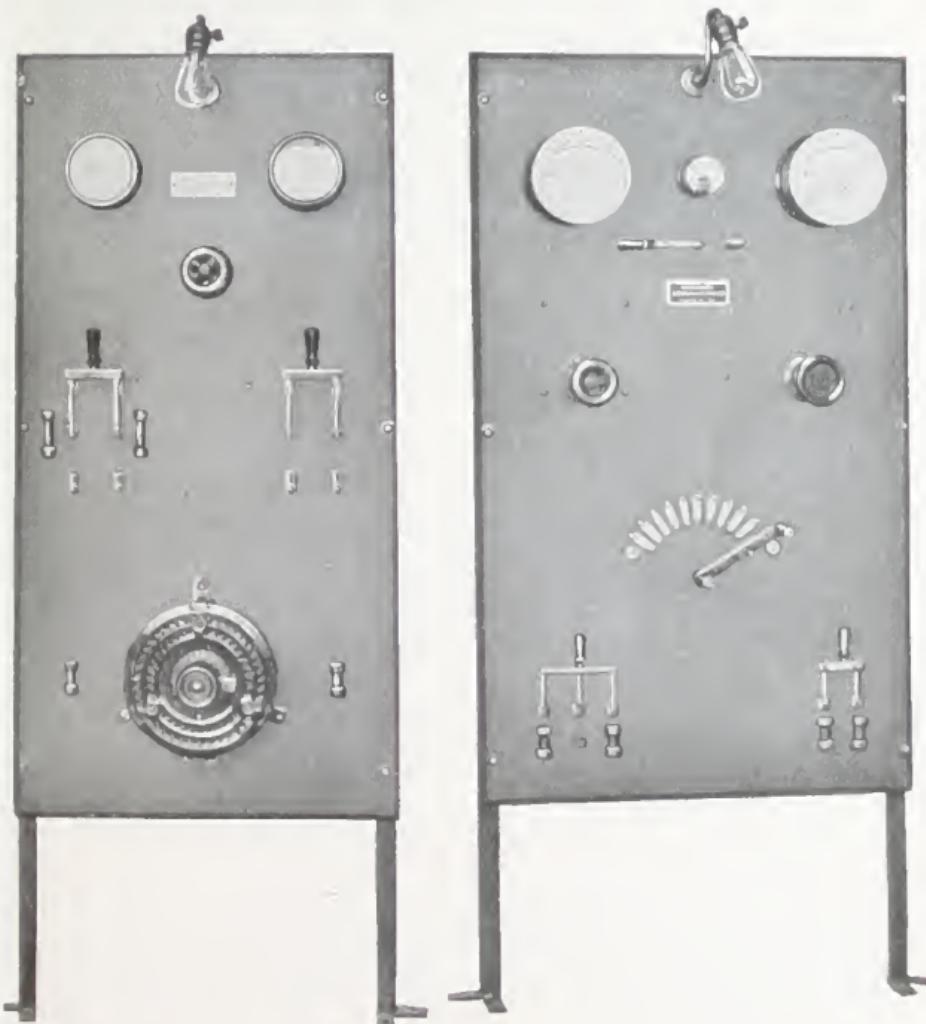


*Home of C. H. Page, Buckner, Mo., Equipped With Our No. 1A Plant.*



*Mr. W. D. Steele, of Chillicothe, Mo., Is Getting Excellent Service From One of Our No. 1A Lighting Plants.*

evening and by the number of days you wish to run on one charge. Actual results show that such a selection gives you a plant much larger than necessary, as all lights connected are not turned on all evening hours. In determining the size of plant for business house, public building, or town lighting, it is necessary to figure the load carefully, and use the tables of plant capacities in arriving at the proper size. In figuring plants for farms or residences, you will be sure of getting the right size if you follow the recommendations given below. Plants selected in this way are certain to give you good service. If you can afford to do so, however, you will always be bet-



*Switchboards for Type B and Special 110 Volt Plants.*

ter off if you order a plant one size larger than necessary. This, of course, is true of an engine, or of any piece of machinery.

Plant 1A—For small residence, with couple lights in barn or other building.

Plant 3A—For large residence and few outside lights.

Plant 4A—For large residence and ten or more outside lights.

Plant 5A, 6A or 7A—For large residences or institutions, or for two or more residences situated close to each other.

### Our Product.

The Barber-Dwinnell Lighting Plant is made in various sizes and types to meet different requirements. We make outfits adapted to every class of work, from lighting the most moderate sized cottage to supplying



*\$4,000 Home of W. H. West, at Barnard, Kansas, Equipped With a Type A Barber-Dwinnell Electric Lighting Plant.*

light current for the largest city. Our plants can be classified as follows:

- 30-Volt Storage Battery Plants.
- 110-Volt Storage Battery Plants.
- Alternating Current Plants.

Each type has its advantages for some kinds of work, and its disadvantages for others.

For the average residence, we especially recommend the 30-Volt plant, on account of its lower cost, both for installation and operation, as well as for the reason that it furnishes all the light that an average residence requires.

### **30-Volt Plants.**

Experience has shown that this type and voltage of plant has, for most classes of work, all the advantages of the 110-volt plant, and at the same time is



*Mr. West's Barns and Outbuildings Are Served by the Same Plant That Lights His House.*

more moderate in cost. There is only one circumstance which would render a 30-volt plant necessary which is when the current is to be carried more than 400 feet from the batteries. Where all the buildings to be lighted are within a radius of 400 feet from the plant, the 30-volt outfit will accomplish everything that can be done with the 110-volt plant. Indeed, in fact all standard electrical appliances can be readily procured for this lower voltage. When it is desirable to supply a number of buildings on one acre or several buildings in town from one plant, and these buildings are reasonably close together, we recommend this 30-volt plant. We have delivered 30-volt plants large enough to supply ample light to all buildings in such groups. We can point to a large number of successful installations of exactly this kind.

A smaller plant of the same kind is used for individual homes. Some houses are larger than others, and some have more outbuildings to light. We have plants of the right size for each. In a great many instances the engine for driving the electric-generator is already being used daily for other work; therefore provision does not have to be made to store much electricity at one time, and a plant with smaller battery capacity can be used. However, even in such cases it is well to select a plant with batteries large enough to supply all the current needed for several days. Then, in case of an accident to the engine, enough current will be stored for all requirements until the necessary engine repair can be made. On other pages we give you a few simple rules for choosing the plant best adapted to your needs and also what size engine is needed. Larger sizes than those indicated may be used, but not smaller.

### Type A. 30-Volt Plants. For Farm or Residential Service.

| Plant<br>No. | Indic.<br>Batt.<br>Capacity | No. 30-Volt<br>Cells<br>Required | Generator<br>Capacity | No. 30-Volt<br>Lamps<br>Required<br>With Lamp |      | Generator<br>Current<br>Required<br>in Amperes | Plant<br>No. 30-Volt |
|--------------|-----------------------------|----------------------------------|-----------------------|---|------|--|----------------------|
|              |                             |                                  |                       | Short   | Long |  |                      |
| TA           | 80                          | 18                               | 1/2 HP 270            | 11  | 18   | 102.00A  | 3000.00              |
| TA           | 40                          | 10                               | 1/4 HP 135            | 7   | 10   | 52.00A   | 1750.00              |
| TA           | 100                         | 24                               | 1/2 HP 270            | 18  | 27   | 108.00A  | 3500.00              |
| TA           | 100                         | 20                               | 1/2 HP 270            | 10  | 18   | 54.00A   | 1800.00              |
| TA           | 100                         | 24                               | 1/2 HP 270            | 10  | 18   | 54.00A   | 1800.00              |
| TA           | 100                         | 20                               | 1/2 HP 270            | 10  | 18   | 54.00A   | 1800.00              |

NOTE.—All plants are rated in 30-volt, incandescent power lights.

### Specifications of Type A Plants.

**Switchboard.** consisting of: Slave Panel and Angle Iron Supports; Voltmeter; Ammeter; Ammeter Self-Resetting Circuit Breaker; Voltage Regulating Rheostat; Charging Switch and Fuses; Lighting Switch and Fuses; Pilot Light Bracket and Socket; all back of board wiring.

**Generator.** High grade short wound machine, com-



*Assembling Department. Here the Batteries Are Formed, Charged and Tested.*



*Molding Department. The  
tion Is Castin*



*Shipping Department. Partial Shipment of an Order for  
Ten Plants From One Kansas Dealer.*

## PEPPERELL WIRE DIVISION



*Developing Department. Here the Existing Prints Are Burned Together With an Oxygen Flame.*



*Shop in Battery Committee Lead Grids.*



*Switchboard Department. Here Our Switchboards Are Built and Subjected to Rigorous Tests.*

cially designed for battery charging, and complete with pulley and belt tightener.

**Storage Battery:** Sixteen of our standard cells, as elsewhere described.

**Belt and Skids:** We ship with the 1A, 3A, 4A and 5A Plants substantial wooden skids for mounting of engine and generator, and also necessary belting.

### Type B, 30-Volt Plants.

#### For Special Work.

Type B Plants are built for stores and public buildings where all lights are burning at once, most of the time. They are arranged for running direct from generator, with battery cut off during the time when all lights are burning, and have batteries to carry the lights at times when only a few are used, or when all the lights are to burn for a short time only. We cannot print specifications of these plants, as each plant must be figured specially to meet the actual requirements.

### 110-Volt Storage Battery Plants.

The ordinary current used in all cities is 110 volts, and has the advantage over lower voltage in that it can be carried as far as a mile from the station without a prohibitive drop in voltage. Our 110-volt plants are made for large farms, public institutions, cities, etc. As there are so many different requirements for 110-volt plants, we prefer to have you write us, giving all information as to what service is required, and let us select the proper size and type of plant. Batteries can be added to any 110-volt generator already in operation. They cannot be larger than the charging capacity of the generator, but can be as much smaller as wanted. In most cases the generator is operated to carry full load until about 10 o'clock, or such time as most lights are turned off, and then the batteries only are used for carrying a few lights which are burning late, night lights, early morning lights and fans. In most such cases it would be unwise to have a battery of the largest size the generator would charge. We often find small town plants with ten or fifteen kilowatt generator where a battery of sixty or ninety ampere-hours is sufficient.

We list below a few sizes of 110-volt plants with batteries of the maximum size the generator will carry. The plants are very simple, as the generator is wound for 140 volts, and all cells are charged in series, the same as with the low voltage plants. An extra large rheostat is furnished for cutting the voltage from 140 to 110 for the lights that may be used when the battery is being charged. When running from the generator direct, the generator voltage is cut to 110 volts for lights. These plants meet the requirements of large farms wanting 110-volt plants, churches, public institutions and some of the smaller cities. The standard 110-volt plants have switchboard arranged for charging battery in parallel, and any combination of sizes of generator and battery can be given. If you find in our Type D Plants a size answering your requirements, you will be taking no chance whatever in ordering it. If you do not find the right plant, write us at once, giving full specifications, and we will immediately give you figures on a complete plant, which will give you the service you want.

## Type D, 110-Volt Plants.

| Plant | Watt<br>Mfrg. Lights | Generator<br>Size | Size<br>Generator | Ammeter Board<br>Battery | Lights      |       | Size<br>Engine | Approximate<br>Shipping<br>Weight | Price F. O. B.<br>Kansas City, Mo. |
|-------|----------------------|-------------------|-------------------|--------------------------|-------------|-------|----------------|-----------------------------------|------------------------------------|
|       |                      |                   |                   |                          | Will Carry- | 8 hrs | 3 hrs.         |                                   |                                    |
| 1 D   | 14                   | 3/8               | K. W.             | 20                       | 12          | 23    | 1 or 1½        | 600 lbs                           | \$130.00                           |
| 2 D   | 27                   | 3/4               | K. W.             | 40                       | 25          | 50    | 2              | 995 lbs                           | 500.00                             |
| 3 D   | 39                   | 1                 | K. W.             | 60                       | 37          | 74    | 3              | 1,200 lbs                         | 690.00                             |
| 4 D   | 63                   | 1 1/2             | K. W.             | 100                      | 65          | 112   | 4              | 1,910 lbs                         | 1,050.00                           |
| 5 D   | 89                   | 2 1/2             | K. W.             | 150                      | 70          | 150   | 4 or 5         | 2,700 lbs                         | 1,650.00                           |
| 6 D   | 97                   | 2 1/2             | K. W.             | 180                      | 88          | 186   | 6              | 3,000 lbs                         | 1,890.00                           |
| 7 D   | 116                  | 3 1/2             | K. W.             | 180                      | 112         | 224   | 6 or 8         | 3,800 lbs                         | 2,320.00                           |
| 8 D   | 130                  | 3 1/2             | K. W.             | 200                      | 105         | 272   | 8              | 4,100 lbs                         | 2,450.00                           |

NOTE—Above plants consist of generator, switchboard and storage battery, as per the following specifications:

**Generator:** 110-140-volt, shunt wound, with sliding base and pulley

**Switchboard:** Slate Panel and Angle Iron Supports; Rheostat for Lights While Charging Battery; Volt-



General Offices of the Barber Dressnell Electric & Manufacturing Company, Kansas City, Mo.

meter; Voltmeter Switch; Ammeter for Generator; Ammeter for Battery; Automatic Circuit Breaker; Double Pole, Single Throw, Line Switch and Fuses; Double Pole, Single Throw, Generator Switch and Fuses; Generator Field Rheostat; Pilot Light Brackets and Socket; all necessary back of board bus bar and wire connections.

**Storage Battery:** 56 Cells of our Standard Type, shipped complete and charged.

## Alternating Current Plants.

Alternating current cannot be stored, which fact makes it necessary to run engines continuously if 24-hour service is required. We have installed a number of alternating current plants in the West, and are



*Mr. Chase Henthorn's Home in Buckner, Mo., Equipped  
With a Type A Barber-Dwinnell Electric  
Light Plant.*



#### ROSE HILL FARM

Buckner, Mo., June 9th, 1914.

Barber-Dwinnell & Co.,  
Kansas City, Mo.

Gentlemen:-

In regard to the lighting plant which we bought of your firm a year ago last winter, would say we have been well pleased with the plant and could not think of being without it at three times the cost. It is so convenient and clean.

When at a neighbors where they use a Rochester burner Coal Oil lamp we feel we are groping in darkness. In the year and a half we have used the Plant have had no trouble with it.

Yours truly,

*Chase Henthorn*

always ready to figure on plants of this type. However, we advise that you consider carefully the direct current storage-battery system before selecting the alternating current type. Unless you have a steady day load of motors the chances are you will be running your plant at a loss in the day time, as a great many are doing. During the night you are almost sure to be running at a loss to serve the occasional lights that are turned on. With a battery plant the lights can always be served. If someone turns on a couple of lights at 2 o'clock in the morning for sickness, those lights take current from the batteries only, while they take no more current than they would at any other time. We do not wish, however, to convey the impression that direct current systems are better than alternating current. Each has its place.

### Current Required by Lamps and Appliances.

#### Tungsten Incandescent Lamps.

|                       |                           |
|-----------------------|---------------------------|
| 8 C. P.—10 Watts, or  | .303 Amperes at 30 Volts. |
| 12 C. P.—15 Watts, or | .469 Amperes at 30 Volts. |
| 16 C. P.—20 Watts, or | .625 Amperes at 30 Volts. |
| 20 C. P.—25 Watts, or | .781 Amperes at 30 Volts. |
| 32 C. P.—40 Watts, or | 1.25 Amperes at 30 Volts. |

Six and one-half pound sadiron takes same current as twenty-seven 16-c.p. lamps.

Curling Iron Heater takes same current as five 16-c.p. lamps.

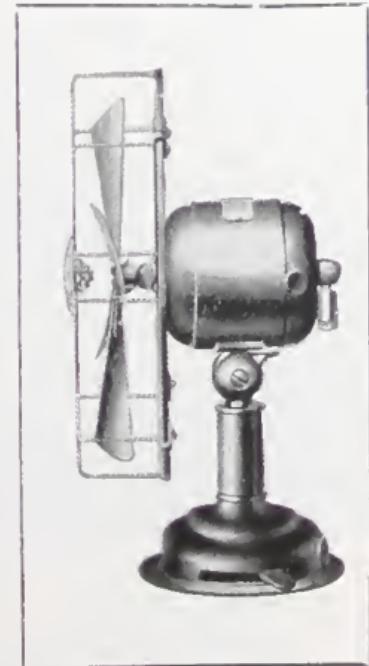
Washing Machine takes same current as twelve 16-c.p. lamps.

Eight-inch Electric Fan takes same current as two 12-c.p. lamps.

Twelve-inch Electric Fan takes same current as three 16-c.p. lamps.

Note that with the small current consumption of electric fans it is possible to run one or two fans all day during hot weather with very little additional battery charging.

We show here a picture of the 8-inch 30-volt fan, which ought to be in every home equipped with a Barber-Dwinnell Lighting System. The comfort of it cannot be measured. Price, each, with seven foot cord and attachment plug, \$9.50.





*W. H. Barrett, Weir, Kansas, Lights His Farm With a 4A Barber-Dwinnell Lighting Plant. Another View of His Buildings Appears on Page 3.*



*W. H. Gunsaulus, of Redfield Lumber Company, Redfield Kansas, Lights His Home With a Type A Barber-Dwinnell Electric Lighting Plant.*



*Mr. Mike Hirsh, at Bloomington, Neb., Lights and Operates His Picture Show With the Plant We Manufacture Especially for This Purpose.*

### Moving Picture Plants.

Electricity is now being used for operating the light of moving picture outfits in even the smallest, most remote places. The electric arc gives a picture so much brighter than can be obtained with any form of gas light that the general public will not continue patronizing a house which is not electrically equipped.

#### 60-65 Volt and 110-120 Volt Systems.

At first all plants installed consisted of 110-120 volt generators as that is the voltage used for ordinary lighting. It is now generally known that a picture arc does not require over 60 volts and that all voltage in excess of that is wasted and makes necessary larger engine and higher operating cost.

FOR INSTANCE: A 3-kilowatt, 65-volt generator will give a good strong picture light and also light twenty 16-candlepower lamps, and requires a 6-horse-power engine. To do this same work with a 110-volt generator would require about a 4½-kilowatt generator. This size is not standard, so we would have to use a 5-kilowatt generator and 10-horsepower engine. The advantage of the special low voltage plants can therefore readily be seen.

We make motor-generator sets, as shown below, for moving picture shows in cities where alternating current is available for motive power, and engine-generator sets for use where electric power cannot be obtained.

Full descriptions and prices of these outfits are given in a special booklet covering this subject. We will be glad to send you one on request.





*Residence of A. B. Bradley, Lawrence, Kansas, Lighted by  
a Type A Barber-Dwinnell Lighting Plant.*



*The Barn of Mr. Bradley Is Lighted by the Same Plant  
Which Lights His House, Shown Above.*

## Wiring Your House.

Wiring is divided into two classes: Open work, with all wires shown, and concealed work, which puts all wires out of sight, between the plastering and outside walls of a building. Open work is most popular and satisfactory, and inexpensive in house building. Holes are seldom used in this way. Concealed work can apply to those in whom there is no process of construction, but if your house is already completed, it involves taking off plaster, and



*Home of George Baker, Jr., Division, N.Y., supplied by  
Type A Barber-Davison Plant, Water Side,  
Service Bureau, Rockaway.*

drilling holes. For this reason it is better to employ a regular electrician who is accustomed to the work. In fact, for any kind of wiring, there are advantages in employing one electrician. One reason for figures for cost at a railroad workshop, partly, is probably that men there will do your work much more quickly than you yourself would. However, it is more modest of your family to appoint some neighbor with no connection. He will see with his eyes your complete satisfaction, and if you choose good wire, fixtures, etc., or good workmen, he will think you a very fortunate person.





*Store of the Weatherby Hardware Company, With I. O. F. Lodge Rooms Above, Lighted by a Type B Barber-Dwinnell Lighting Plant.*



## The Weatherby Hardware

E. E. DeHART, Proprietor.

Hardware, Implements, Buggies.



Weatherby, Mo., June 13<sup>th</sup> 1914

Messrs. Barber-Dwinnell Electric Light Co.,  
Kansas City, Mo.

Gentlemen:-

This is to tell you that the Electric Light Plant that you installed for us in our new building in March, is working perfectly. There is a world of satisfaction in knowing that we can have a perfect light all over the building, at only a turn of the switch, day or night. We have all the light we want and it's always ready. After once installed the expense is practically over, and after having used our plant for three months, it is our opinion, that no well regulated store or lodge room can afford to be without one. It is easy to operate, and has never given a minutes trouble.

Yours very truly,

The Farmers Store,

*E E DeHart* Prop.



*Read What Mr. T. P. Huffman, Arlington, Tex., Says of His Type A Barber-Dwinnell Lighting Plant.*

### T. P. HUFFMAN

DEALER IN

HORSES MULES AND JERSEY CATTLE

W PHONE SERVICE  
HURST LINE CONNECTIONS

ARLINGTON, TEXAS Jan. 28, 1914.

Barber-Dwinnell Electric Co.,  
Kansas City, Mo.

Gentlemen:-

Your letter of the 16th received and contents noted. Will say that it is very nice in you to replace the broken switchboard so promptly. I like the construction of the new board much better than the old one, and wish to thank you for supplying this, also to say that you will never lose anything on my part for it, for the plant has given perfect satisfaction so far and I will speak well of it and your firm as being prompt and reliable, to all my neighbors and friends. When I get it well in operation again, I intend to have some photos made of my plant and house and send you some, and if you can use them to any advantage you are at liberty to do so. The batteries I guess were fully charged and we have had all the lights we needed, and they are bright and good too. It sure does give perfect satisfaction.

If you want to hear from me about anything that might help you in the sale of your plants, let me hear from you any old time.

Your friend,

*T P Huffman*



OFFICE OF  
**THE WALDO IMPLEMENT COMPANY**  
 INCORPORATED  
**HARDWARE AND IMPLEMENTS**  
 PUMPS WINDMILLS HARNESS VEHICLES

Waldo, Kansas June 20, 1914.

The Barber-Dwinnell Electric & Manufacturing Co.,  
 Kansas City, Mo.

Gentlemen:-

We are very well pleased with the 110-volt storage battery we bought of you, and must say that your new special cell is the best we have ever investigated. It takes a complete charge without gassing, and has a great discharge capacity. While we think too much of it to give it a severe test, we believe that it will discharge much more than its rated capacity, and the light shows very little variation at various stages of discharge. We are supplying eight buildings with our plant, and the battery light gives the best of satisfaction.

We greatly appreciate the service you have rendered us in the way of information and instructions, which are so necessary to the installation of a plant by anyone who is not an electrical engineer. We have always found your information reliable and furnished to us in a way that we could understand it. We also appreciate the prices at which you have furnished us the supplies needed, and have found that we could save money in giving you our entire business. We certainly would advise anyone who desires a first-class light which is perfectly safe and satisfactory in every way, to try your battery and equipment.

Very truly yours,

THE WALDO IMPLEMENT CO.,

By *E. J. Gisteler*



*Cherokee County Home, Columbus, Kansas, Lighted With Our Type B Plant.*



F. Timmels, Gouverneur, New York: Right: The Building  
With Our First Storefront Display Plant.



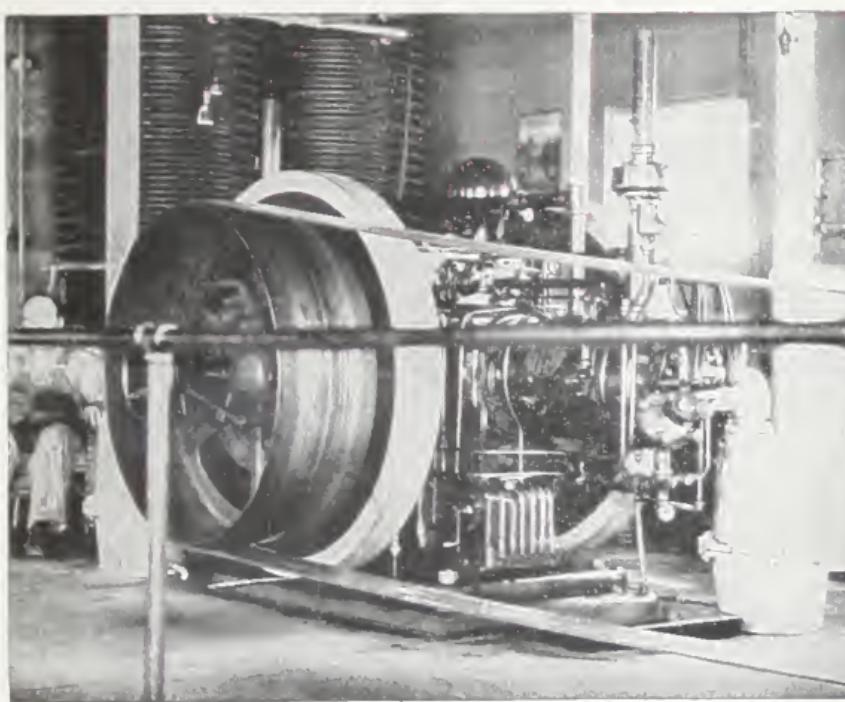
The Standard Glass Co. Ltd., Dr. Kew, Surrey, Eng.



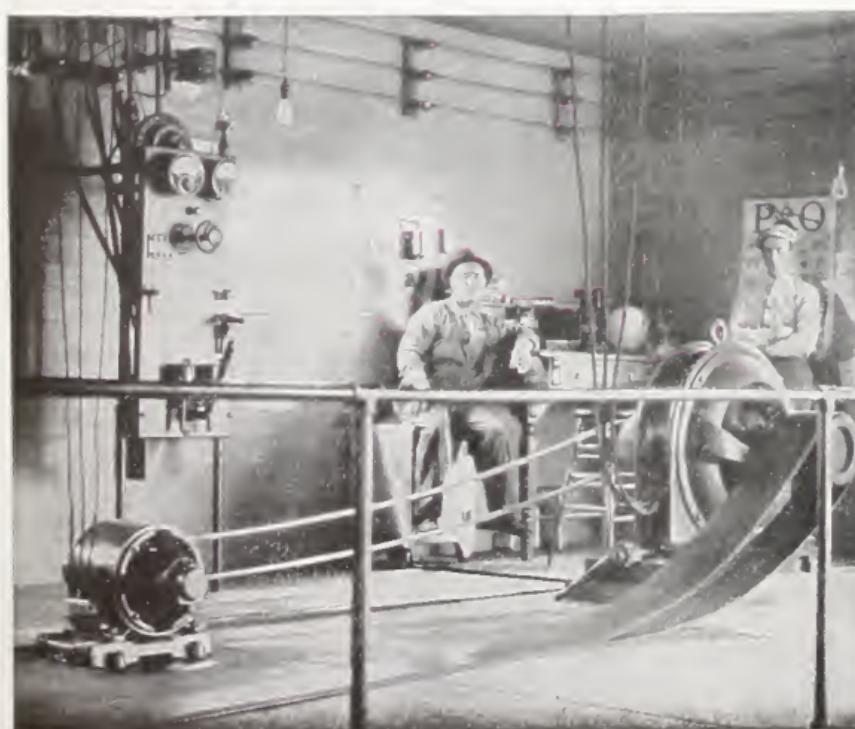
*Mr. F. A. Placke Lights the Town of Milligan, Neb., With Our 110-volt Storage Battery Plant.*



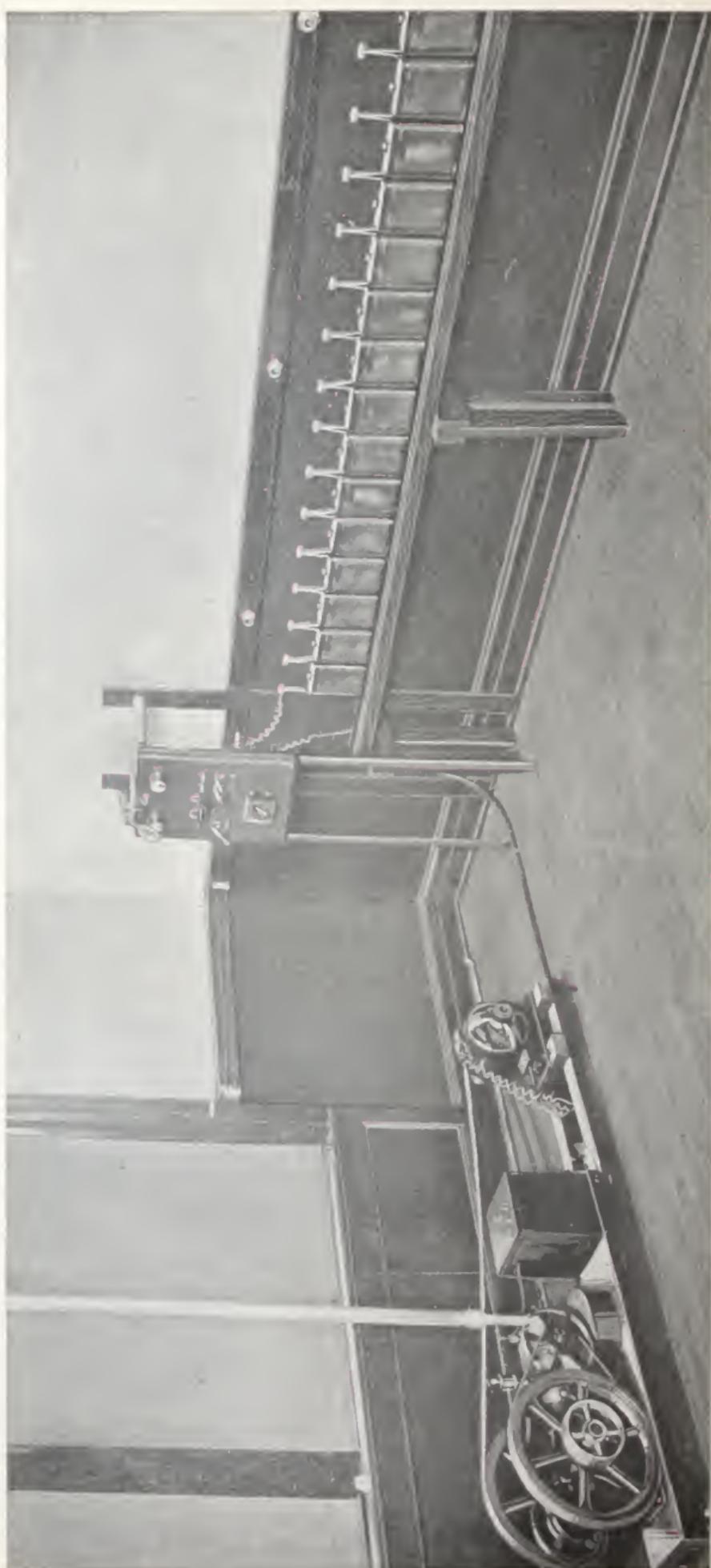
*Administration Building, Kansas City Board of Public Welfare, Leavenworth, Mo., Lighted by Our Special 110-Volt Plant.*



*The Town of Burwell, Neb., Is Lighted by Our 110-volt Alternating Current Plant. O. W. Taylor, Owner.  
Plant Is Run by a 50-horsepower I. H. C. Engine.*



*Another View of the Taylor Plant at Burwell, Neb.*



*Our No. 1A Plant Being Run With a One-horsepower  
International Harvester Company Engine.*